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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,121	11/03/2003	John Edward Lecky	107044-0039	5059
24267	7590	05/04/2007		
CESARI AND MCKENNA, LLP			EXAMINER	
88 BLACK FALCON AVENUE			CRÉPEAU, JONATHAN	
BOSTON, MA 02210			ART UNIT	PAPER NUMBER
			1745	
			MAIL DATE	DELIVERY MODE
			05/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/700,121

Applicant(s)

LECKY, JOHN EDWARD

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-10 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-10 and 16 is/are allowed.
- 6) ☒ Claim(s) 3,4,15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 3-10, 15, 16, and newly added claim 17. Claims 5-10 and 16 are allowed. Claims 4 and 15 remain rejected under 35 USC 102 for the reasons of record, while claims 3 and 17 are newly rejected under 35 USC 103 as necessitated by amendment. Accordingly, this action is made final.

Claim Rejections - 35 USC § 102

2. Claims 4 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Bai et al (U.S. Patent 6,620,538). In column 5, line 35, the reference teaches a method comprising the steps of measuring changes in fuel cell current and voltage before and after a shunting operation, and then calculating the resistance of the fuel cell. Between the shuntings, the current and voltage of the fuel cell is applied to a load, i.e., a fixed resistance (see col. 12, line 60).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

3. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/092093 in view of Inoue et al (U.S. Patent 6975813)

WO '093 is generally directed to a fuel cell electrode. On page 19, line 33, the reference teaches a method of measuring the serial resistance of a fuel cell comprising the steps of operating the fuel cell at a constant current of 40 mA, cutting off the current, analyzing the voltage, and determining the resistance.

WO '093 does not expressly teach that the constant current is coupled to the fuel cell with a constant current sink having an operational amplifier receiving a control voltage and connected to a power transistor and also having a sense resistor, as recited in claim 17.

Inoue et al. disclose a constant current circuit containing these components in Figure 29.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the constant current circuit of Inoue et al. to supply the constant current of WO '093. The disclosure of Inoue et al. indicates that a constant current generator containing the claimed components is well-known, and as such the skilled artisan would be apprised of its suitability to be used in applications requiring constant current sources such as WO '093. As such, the artisan would be motivated to use the constant current circuit of Inoue et al. to supply the constant current of WO '093.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/092093 in view of Inoue et al as applied to claim 17 above, and further in view of Bai et al.

WO '393 does not expressly teach that changes in calculated resistance over time are evaluated as a measure of fuel cell hydration, as recited in claim 3.

Bai et al. teach this feature in column 18, line 18.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to evaluate the resistance of the fuel cell of WO '093 as a measure of hydration. In column 18, line 30, Bai et al. teach that fuel cell hydration and output current can be "optimized" as a result of this analysis. Accordingly, the artisan would be motivated to evaluate the resistance of the fuel cell of WO '093 as a measure of hydration.

Response to Arguments

5. Applicant's arguments filed March 6, 2007 have been fully considered but they are not persuasive. Applicants generally assert that Bai is not anticipatory of claims 4 and 15. However, it is still believed that Bai anticipates these claims for the following reasons: although Bai does not expressly teach a "fixed resistance load" as recited in claim 4 or a "fixed load" as recited in claim 15, the disclosure of a load (66) would enable a skilled artisan to immediately envisage a fixed load, as claimed. Since in general a load can be either fixed or variable, it is submitted that the disclosure of a "load" is sufficiently specific to anticipate the claimed "fixed resistance load." Further, to clarify the rejection, it is the Examiner's position that the reference discloses the claimed method steps with sufficient particularity so as to constitute an anticipation. For example, while it is not expressly stated that fuel cell stack voltage is allowed to stabilize at a

first voltage level and then the fixed resistance is removed, the disclosure at col. 13, line 17 et seq. states that V_w is measured, where " V_w is the normal or work voltage of the fuel cell before the short circuit is applied." This voltage corresponds to the claimed "first voltage level" and is measure prior to the load, i.e., fixed resistance being removed. The resistance is then calculated based on the voltage measurement obtained after the short circuit. Thus, it is submitted that this disclosure is anticipatory of the subject matter of claims 4 and 15.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Primary Examiner
Art Unit 1745
May 2, 2007